

Appn. Number 10/620,677

McNitt

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- (d) ~~means for processing said video image data containing recorded image representations of said light reflective element whereby determining a plurality of motion measurements of said light reflective element, and thereby said golf putter to which said light reflective element is attached;~~  
a light reflective element attached to a surface of said golf putter whereby providing a visual target to record using said video recording devices, detect, and measure position and angle of said light reflective element representing said putter, relative to said exact trajectory with respect to time;
- (e) ~~a display device providing means for presenting said absolute linear and angular motion measurements;~~  
a computer readable media containing computer algorithms operable in said computer processing environment for processing said video image data as recorded from each single said video recording device containing recorded image representations of said light reflective element whereby determining a plurality of said position and angular measurements of said light reflective element relative to said exact trajectory, representing said golf putter to which said light reflective element is attached;
- (f) ~~means for calibration such that measurement error caused by distortion or misalignment of said image recording devices is substantially reduced;~~  
a display device providing means for presenting said position and angular measurements relative to said exact trajectory;
- (g) means for processing and correcting said position and angular measurements using said calibration correction factors relative to said exact trajectory;

~~whereby providing objective physical motion information to aid in instruction and correction of said putting stroke.~~

whereby providing corrected, position and angular motion measurement information to aid in instruction and improvement of said putting stroke.

**Claim 2 (currently amended):**

~~The analysis tool as defined in claim 1 further comprising a means for automatically starting a detection process as part of processing said video image data based on a~~

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~~predetermined amount of change of said video image data contained within a user defined hot spot region as a function of time.~~

The analysis tool as defined in claim 1 further comprising a means for automatically starting a detection and analysis process as part of processing said video image data from an individual said video image recording device based on a predetermined amount of change within a user defined image region of same said video image data from the same individual said video image recording device as a function of time.

**Claim 3 (currently amended):**

~~The analysis tool as defined in claim 1 further comprising a calibration fixture containing a guiding feature and visual calibration target aligned to one another to aid in the process of calibrating and aligning said analysis tool.~~

The analysis tool as defined in claim 1 further comprising a calibration fixture assembly to perform said calibration process, comprising:

(a) a physical golf ball guide with alignment feature;

(b) a visual calibration target.

whereby a recorded video image of aligned said visual calibration target is processed to perform said calibration process.

**Claim 4 (currently amended):**

~~The calibration fixture as defined in claim 3 wherein said guiding feature is a slot of sufficient dimensions to guide a rolling golf ball to determine a direction vector said golf ball must travel along to successfully reach a target zone.~~

The calibration fixture assembly as defined in claim 3 wherein said physical golf ball guide is a groove of sufficient dimensions to physically guide a rolling golf ball to determine the initial direction vector said golf ball must travel along, and therefore said exact trajectory, to successfully reach a specified target zone.

**Claim 5 (currently amended):**

~~The calibration fixture as defined in claim 3 wherein said visual calibration target is a uniform pattern of distinct features contained on a surface of said calibration fixture used~~

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~~to calibrate and compensate for distortion or misalignment of said video image recording devices.~~

The calibration fixture assembly as defined in claim 3 wherein said visual calibration target contains on its surface a uniform pattern of distinct features that can be manually aligned to the said physical golf ball guide alignment feature to facilitate the process of calibrating and aligning said analysis tool to said exact trajectory.

**Claim 6 - 14 (canceled)**

**Claim 15 (currently amended):**

~~The method as defined in claim 14 whereby said detection process employs digital image processing algorithms to find a center location and edges of the representation of said reflective element in each said frame of video image data, thereby determining position and angle of said golf putter.~~

The analysis tool as defined in claim 1 wherein said computer readable media containing computer algorithms further comprising a detection process using digital image processing techniques to find a center location and edge boundaries of the representation of said reflective element in each frame of said video image data from a single said video recording device, thereby determining said position and angular measurements of said light reflective element relative to said exact trajectory.

**Claim 16 (currently amended):**

~~The method as defined in claim 11 whereby said secondary motion data is comprised of stroke tempo, back stroke distance, follow through distance, off-line distance, and variance from ideal path.~~

The analysis tool as defined in claim 1 further comprising a means to calculate secondary motion data from said position and angular measurements of said light reflective element relative to said exact trajectory. This said secondary motion data is comprised of stroke tempo, back stroke distance, follow through distance, off-line distance, and variance from ideal path.